



**Fw: Upper Alluvium Extraction Well Design**

**Sean Sheldrake** to: bayuk.dana

Cc: "Peterson, Lance"

Bcc: Rene Fuentes

03/19/2012 04:45 PM

Dana,

Following are EPA's comments on the March 14, 2010 letter titled *Upper Alluvium Extraction Well Design, NW Natural Gasco Site, Portland, Oregon*, prepared by Anchor QEA for NW Natural. The letter discusses the grain size testing results from the recent soil borings and provides the design for extraction well filter pack sand gradation and screen slot size for the proposed upper alluvium extraction wells PW-2-U, PW-3-U, PW-5-U, and PW-6-U. EPA finds the recommended filter pack and screen slot size reasonable pending clarification/acknowledgment from NW Natural on the following:

The letter references a "typical" sand curve for 16x30 sand pack in the attachment titled "Grading Parameters of Lapis Lustre Sands (cumulative percent passing)" provided by RMC Pacific Materials (dated October 20, 1999). NW Natural should confirm that RMC Pacific Materials will be the supplier of the sand to be used for the upper alluvium extraction well completions.

Regarding the Filter Pack:

- NW Natural should verify that the supplied filter pack is washed and sterile. Some suppliers do not sterilize the filter pack, which can lead to a more rapid bio-fouling if the filter pack has excessive bacteria.
- NW Natural should verify that the supplied filter pack meets the specifications provided in the "type" sand curve analysis that the design relies on by conducting a Quality Control check of the filter pack delivered on site. This can be achieved with a hot plate, or microwave for drying the filter pack samples (if necessary), a set of standard sieves, a and shaker. One (50 to 100 pound size) bag of filter pack should be randomly sampled per well completion (4 bags total) to confirm it meets the specifications provided by the manufacturers "type" curve. The filter pack should not vary beyond the limits of the calculated D50 range x 5, or show a passing of no more than 5% for the selected screen slot.

Let us know if you have any questions or concerns.

Thank you.

S

Sean Sheldrake, RPM, Unit Diving Officer  
USEPA, Region 10  
Environmental Cleanup Office  
1200 Sixth Avenue, Suite 900, ECL-110  
Seattle WA 98101-3140  
sheldrake.sean@epa.gov  
Phone: 206/553-1220

Region 10 Dive Team: <http://www.epa.gov/region10/dive>

EPA Divers only: <http://204.47.216.153:9876/r10/infopage/cleanup.nsf/webpage/DSBtechdirector>

Portland Harbor Cleanup: <http://www.epa.gov/region10/portlandharbor>

Green Cleanups: <http://yosemite.epa.gov/R10/extaff.nsf/programs/greencleanups>

Green Cleanups (EPA only):

<http://204.47.216.153:9876/r10/infopage/cleanup.nsf/webpage/greener+cleanups>

Health and Safety (EPA only): <http://204.47.216.153:9876/r10/infopage/cleanup.nsf/webpage/H&Sec1>

Deliveries: Parking Garage mailroom (1st floor)

Visitors: Check-in @ PERC / Service Center on 12th floor:

<http://yosemite.epa.gov/r10/extaff.nsf/Homepage/Visiting+Seattle>

**From:** John Renda [mailto:jrenda@anchoragea.com]

**Sent:** Wednesday, March 14, 2012 12:24 PM

**To:** Dana Bayuk

**Cc:** Sean Sheldrake; Peterson, Lance; Coffey, Scott; GAINER Tom; Henning Larsen; Bob Wyatt; Patty Dost; Ben Hung; John Edwards

**Subject:** Upper Alluvium Extraction Well Design

Dana -

Attached is the Upper Alluvium Extraction Well Design Memo for the 4 pumping wells identified for testing to evaluate well spacing in the upper alluvium. Given the long lead-time for the screen materials, we would like to place our order by the end of the week.

Please let me know if you have any questions.

**John J. Renda, R.G.**

**ANCHOR QEA, LLC**

[jrenda@anchoragea.com](mailto:jrenda@anchoragea.com)

6650 SW Redwood Lane, Suite 333

Portland, OR 97224

Main 503.670.1108 x171

Direct 503.924.6171

Fax 503.670.1128

**ANCHOR QEA, LLC**

[www.anchoragea.com](http://www.anchoragea.com)

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